# NATURAL ENVIRONMENT RESEARCH COUNCIL

# NERC DATA POLICY HANDBOOK

**Version 2.1 (March 1999)**

**CONTENTS**

## 1 INTENDED READERSHIP

Who Should Read This Handbook?

This document provides guidance on the implementation of NERC's Data Policies. It is directed at the following key decision makers and managers, who can cascade it down as appropriate to their staff and to those who need to know, with further organisation-specific directions where necessary.

- NERC Centre, Survey and Institute Management
- Heads of NERC Thematic Programmes
- NERC Science & Technology Boards and Expert Groups
- Heads of NERC Designated Data Centres
- Heads of other organisations within the environmental science community which are providing data services
- Environmental scientists in academia, especially those supported by NERC
- While the handbook has thus been designed as an internal document for the NERC community, its wider distribution is not restricted, and it may be circulated to other organisations or individuals who have an interest.

## 2. INTRODUCTION

It is the mission of the Natural Environment Research Council to:

- promote and support high quality basic, strategic and applied research;
- carry out long-term environmental monitoring;
- provide services which meet the needs of users and beneficiaries;
- contribute to the effectiveness of public services;
- contribute to the economic effectiveness of the UK;
- provide advice on, disseminate knowledge about, and promote public understanding of, the environment.

In the conduct of NERC's business, scientists often consider the end point of their research to be the production of **publications**, whether in open literature or in the form of reports to customers. While these form one output from scientific activity, science in general and environmental science in particular involves the **collection of data**, and the subsequent **management of these data** is implicit in NERC's mission. While data will indeed be manipulated by the researcher to provide material for publication, **data are a resource in their own right**. Properly managed and preserved, they can potentially be used and re-used by future researchers, and exploited commercially or educationally. Such further uses, often never envisaged in the first instance, will make an additional contribution to NERC's objectives.

Environmental data are often irreplaceable; they are always unique, if only in the timing of collection. They can also be extremely expensive to collect. For these reasons NERC attaches great importance to ensuring that maximum benefits are derived from data once acquired. Council has therefore developed formal policies relating to data, which are set out in Annex 1. Their full implementation must inevitably be an evolutionary process since some aspects of policy can only be achieved when concomitant funding is available. As a first step it is essential that the policies and their implications are understood at a management level throughout the NERC community.

Managers will then need to ensure that appropriate guidance is passed down to all who need it within their organisations.

## 3. GENERAL ISSUES RELATING TO DATA

### 3.1 The Nature of the Data Resource

'Scientific data' may be held in either analogue or digital form and be stored either on paper or a variety of computer-compatible media. There is a spectrum running from 'raw data' through 'processed data' to 'information' and ultimately 'knowledge'. The material held by libraries, and the physical specimens in curated collections, might be regarded as 'data', although they are outside the usual sense of the word. It would be idle to attempt a rigid definition of the term 'data'.

These policy guidelines have generally been designed with **digital, computer-based datasets** in mind, although the **principles** can often be extended to cover a wider field. 'Data' so defined still exhibit considerable diversity. For example, there are: major computer-based databases which are continuously managed and extended by the validation and addition of incoming data from multiple sources; the output files from computer-based predictive models, which can be regarded as 'environmental data' even though they do not constitute measurements of the environment; digital datasets deposited as archives after research projects have ended; and datasets held by individual scientists on which they are actively working as part of their research. Some of these last will be ephemeral and never justify long-term preservation. To give an extreme example, the transitory contents of a scientist's calculator might be regarded as 'scientific data'! **But many datasets are potentially valuable**, whether scientifically, educationally or commercially, even when (or indeed because) they were collected a long time ago.

### 3.2 Ownership and Custody of Data

If the term 'data' is difficult to define precisely, then so too is the concept of 'NERC's data'. Environmental science datasets are collected or generated by NERC scientists and NERC-funded Higher Education Institutions (HEIs). Datasets are also placed into the custody of NERC as a result of statutory obligations, voluntary deposits, negotiated exchanges or purchase, with concomitant obligations on NERC.

Despite behaviour that might suggest the contrary, **datasets frequently do not belong to those who have collected them**. They generally belong to the employers of such data collectors (eg NERC or the HEIs) or to those who have paid for the data collection (eg bodies commissioning research). Ownership can become more complex when data collection has been jointly funded. Ownership of datasets implies the right to **exploit** them and, if continued maintenance becomes uneconomic, the right to destroy them. If legal ownership is in question, or is excessively fragmented, it may be impossible for **anybody** to exploit data. The important point is that all parties who may have a claim to ownership or part ownership of a dataset should agree at the outset as to how it is to be exploited, and how the benefits are to be shared.

### 3.3 Obligations of Those Holding Data

It follows that scientists in the NERC environmental science community will often be holding data owned by NERC (or some other body), or in which NERC as a funding body has an interest. There are consequent **obligations on the holders (and their management) to look after the data responsibly**, so that these interests are not compromised, and indeed to be **aware of the**

**issues that are important in this context.**

For example, researchers will often exchange datasets in a spirit of scientific cooperation, and it is part of the normal process of science that they should do so. However, if a dataset has been distributed to third parties without any restrictions on its subsequent re-use or redistribution, then any later commercial exploitation of that dataset is likely to have been undermined, so losing income that might have been spent on further science. At times, therefore, data transfers need to be controlled by formal licence agreements. To attempt a rigid definition of the circumstances when this should apply would be as futile as defining the term 'data' in the first place. The environmental science community needs to develop a culture where scientists consider such issues, use their own judgement and **seek guidance when appropriate.**

Datasets can easily be destroyed unintentionally, or effectively lost, by failure to take adequate and continuing precautions to safeguard them; they may be held on vulnerable computer media without adequate back-up, such media may become obsolete over time, and the data formats may be undocumented. Unique paper records are vulnerable to fire or physical deterioration. Researchers and their management must be aware of these dangers.

Scientists will frequently process the data they have collected selectively, or with specific application packages, in order to prepare material for publication in the scientific literature. But the full value of the data collected may only be realised if the entire dataset is subjected to generic processing (eg to ensure calibration and adequate quality control) and is sufficiently documented to allow others to re-use it at a later date. The original collector may be the only person in a position to undertake such work, and so to unlock the full potential of the data. Those holding data collected under NERC funding will be expected to cooperate in validating and publishing them in their entirety - **when this can be justified in terms of their scientific value** - rather than merely creaming off a subset for immediate publication in the literature. As a logical consequence, NERC must accord due recognition and support to the 'publication' of data in this way.

It is self-evident that datasets can only be fully exploited if potential users are aware of their existence. Scientists will be expected to cooperate with NERC in providing information about them.

NERC grant-holders in academia are required to offer to lodge with NERC a copy of the data resulting from the supported research when it is completed, together with documentation/metadata describing these data. NERC will then be in a position to make the data available to others (under suitable constraints) for further bona fide research only. The Intellectual Property Rights to the data need not be transferred; see 6.3 for commercial exploitation of data.

### 3.4 Obligations of NERC towards Scientists Collecting Data

Individual scientists, principal investigator teams and programmes will be permitted a reasonable period of exclusive access to datasets which they have collected, allowing them to work on them and produce publications. Moreover, **NERC will give due recognition to the production of publishable, application-independent datasets alongside that of papers in the scientific literature**, and Grants Committees recognise that the activity is a legitimate call on NERC funding. The long term professional maintenance of such datasets, and their dissemination as a service to those who need them, is an activity often quite distinct from the data acquisition and subsequent research of the originator. This long term data stewardship will often be undertaken by NERC's Designated Data Centres, described below, which have been established on a permanent basis independent of the limited life of most scientific projects.

Where NERC-funded academics have deposited data with NERC, the Data Centres can disseminate these data to other bona fide researchers as a service to the environmental science community.

### 3.5 Other Legal and Contractual Obligations

Both NERC as a legal entity, and individual members of the NERC scientific community, are bound by legal and contractual obligations which relate to data. In particular

- Dissemination of data from the Antarctic may be covered by the Antarctic Treaty.
- Many of NERC's datasets may constitute 'environmental information' within the meaning of the Environmental Information Regulations 1992, which gives effect to the EC Directive on the Freedom of Access to Environmental Information. See 6.
- 'Personal data' held in computers are subject to the Data Protection Act 1984. While most environmental datasets will not contain information about individuals that would be covered by the Act, any that do must be registered with the Data Protection Registrar.
- Data may be collected under the terms of a contract or Memorandum of Understanding with another body which may specify the rights and obligations of the contracting parties with respect to datasets and their dissemination.
- Datasets needed by a researcher may not belong to NERC, but have been obtained under licence from another supplier; the terms and conditions of the licence must be observed.

## 4. MANAGEMENT RESPONSIBILITIES FOR DATA WITHIN NERC

### 4.1 The NERC Designated Data Centres

It will be clear from the foregoing that NERC's interests in ensuring that data are managed as a coherent resource may be wider than the immediate concerns of the researcher who originates or holds individual datasets. On the other hand, issues relating to scientific data are best handled, and related services best provided, by those with a background in the underlying discipline. **Council has therefore delegated responsibility for its data, and implementation of its data policies, to seven Designated Data Centres as follows**.

*Antarctic Environmental Data Centre:* British Antarctic Survey, Cambridge. Responsible for all NERC's data from the Antarctic, regardless of discipline.

*British Atmospheric Data Centre:* Rutherford Appleton Laboratory, Chilton, Didcot, Oxfordshire. Responsible for atmospheric sciences data.

*British Oceanographic Data Centre:* Centre for Coastal and Marine Sciences, Proudman Oceanographic Laboratory, Bidston Observatory, Birkenhead, Merseyside. Responsible for marine data.

*National Geosciences Information Service:* British Geological Survey, Keyworth, Nottingham. Responsible for geosciences data.*

*National Water Archive:* Centre for Ecology and Hydrology, Institute of Hydrology, Wallingford, Oxfordshire. Responsible for NERC□s hydrological data and for the Government□s National River Flow and Groundwater Level Archives.

*Environmental Information Centre:* Centre for Ecology and Hydrology, Institute of Terrestrial Ecology, Monk's Wood, Huntingdon, Cambridgeshire. Responsible for all other NERC terrestrial and freshwater data.

*NERC Earth Observation Data Centre:* Rutherford Appleton Laboratory, Chilton, Didcot, Oxfordshire. Responsible for Earth Observation data held by NERC, notably the satellite imagery archive at Dundee, imagery from NERC airborne surveys, and NERC's archive of imagery from commercial sources.

* NERC's Science Based Archaeology community should liaise directly with the Archaeology Data Service, Dept of Archaeology, University of York, Kings Manor, York YO1 2EP tel 01904-433954 fax 01904-433939 e-mail info@ads.ahds.ac.uk

The intention is that all NERC data will be under the aegis of one or other of the Designated Data Centres. Generally speaking it will be self-evident which one is appropriate; overlaps or gaps in jurisdiction are resolved by mutual agreement between them, or by the NERC Data Strategy Group (Section 4.3).

It is important to distinguish the Designated Data Centres' **responsibility** for data in their science area from actual **data custody** itself. Some Designated Data Centres are resourced to undertake the latter, with scientists physically transferring to them datasets for subsequent central custody and stewardship. Some do not undertake physical custody at all, but are aware of where datasets are held, and coordinate those who hold them; the physical datasets may therefore be widely dispersed in NERC institutes, academia or other bodies. Other Designated Data Centres lie between the extremes, maintaining some discipline-related data, but with substantial holdings managed elsewhere.

The responsibilities of the Designated Data Centres are listed at 4.4. Contact details are given in Annex 2.

## 4.2 The Role of the Science & Technology Boards

Long term data stewardship is an expensive activity. The justification for funding it must lie in the contribution that it will make to science, the creation of wealth, or to improvements in the quality of life. In any area of science, the scale of data stewardship, whether undertaken by the Designated Data Centres or elsewhere within the NERC community, should reflect the anticipated overall value (scientific or otherwise) of the data over the long term. This value will often be

much greater than any immediate financial return obtainable from commercially licensing access to the data in the short term. Often, data will be of value to users beyond the immediate NERC environmental science research community. In managing data a balance must be struck between the scale of the commitment needed (across the entire lifetime of the activity) and the anticipated benefits, both scientific and financial. Judgements on the balance will be affected by the characteristics of the related scientific discipline, and are therefore the province of NERC's Science & Technology (S&T) Boards and Expert Groups. The data stewardship activities in each science area should be responsive to the overall science strategy. S&T Boards will set clear objectives to the Data Centres as to the nature of the return they are expecting from their investment in data stewardship, and monitor Data Centre activities and costs. Boards will ensure that science activities within their disciplines are paying due attention to data issues, and in recommending the allocation of resources they will satisfy themselves that there is appropriate funding in each of the following areas.

- Core funding via NERC Centres/Surveys to meet the data requirements of their science strategy and commercial work. This area is the responsibility of the Centre/Survey Boards.
- Specific funds for each Thematic Programme so as to ensure the proper management and stewardship of data generated by that programme. (Section 5)
- Funding to provide a data service to HEIs, other than as above.
- Funding to allow Data Centres to adopt lead roles at national or international level where appropriate.
- Funding to grasp opportunities relating to data stewardship - eg to acquire and preserve data at risk.

In some cases, direct receipts from commercial licensing of data will contribute toward the above funding lines, so subsidising data management and scientific research.

### 4.3 The NERC Data Strategy Group

In order to coordinate the implementation of data policy across NERC, the Designated Data Centres are all represented at management level on a Working Group of Council, the NERC Data Strategy Group, with a secretariat at NERC Swindon Office.

The terms of reference of the Data Strategy Group are as follows.

- To promote a close working relationship between Swindon Office, as procurer of data services, and the NERC Designated Data Centres, as principal suppliers of these services, and so to facilitate the implementation of NERC's policies relating to scientific data.
- To provide a forum for management level cooperation between the NERC Designated Data Centres, so that maximum benefit can be derived from NERC'S data holdings by managing them as a single coherent resource to meet the needs of the user community, and by minimising any barriers to inter-operability between data holdings.
- To identify issues relating to NERC's data holdings where a corporate, pan-NERC approach should be adopted, and to develop associated strategies, eg in relation to: other national and international holders of environmental data, and co-ordination/ integration of their data with NERC's; legislation; marketing initiatives; and issues relating to copyright/Intellectual Property Rights (IPR).
- To encourage the exploitation of NERC's data resource to promote science, generate wealth or improve the quality of life.

- To ensure that developments in technology which will affect either the operation of the Data Centres, or NERC's requirements for data stewardship, are brought to the attention of the Data Centres, enabling them to respond and to grasp new opportunities in a timely manner.
- To advise Council, through the Group's Chairman, on any policy or funding issues relating to NERC's data resource and its exploitation.
- In particular to ensure that Council's published data policies are publicised and kept under review, and that the implementation of Council's intentions with respect to the stewardship of NERC's data resource is monitored.
- To liaise (via Director, Partnership & Innovation, in particular) with the Science and Technology Boards, providing them with a corporate view on issues relating to their associated Data Centre(s) and the contribution of data stewardship to the achievement of scientific objectives; and so helping them to contribute to the implementation of Council's data policies.

### 4.4 Detailed Responsibilities of the Designated Data Centres

The NERC Designated Data Centres are responsible for the following.

i ensuring the adequate physical custody, validation, dissemination and review/purging of data in their subject area. (In many cases they will undertake this stewardship themselves; when they do not, they will at least have contact with those who do.)

ii maintaining standards of data stewardship in the subject area.

iii pro-actively seeking out data in their subject area which would merit more active stewardship; encouraging the deposit of datasets by other organisations; and advising NERC-funded academics on whether and where their data should be deposited on completion of their projects.

iv promoting the case for investment where necessary to facilitate the above.

v promoting the use of data in their subject area by devising and promulgating catalogues, directories, leaflets and brochures.

vi formally arranging licences to control the release of datasets to non-NERC recipients, the uses to which the datasets may be put, and their further dissemination; and to protect NERC from legal liability. Pricing data in accordance with NERC guidelines in order to derive revenue and/or other scientific benefits from NERC's data resource.

vii advising on the licensing/purchase of non-NERC data required by researchers. In some cases they will undertake this on behalf of the scientist, to ensure the most favourable terms and conditions, and best value for money.

viii handling all requests for their discipline's data made to NERC with the specific invocation of the Environmental Information Regulations.

ix maintaining up-to-date information on data holdings in their discipline on the World Wide Web. The complete set of Data Centre pages, and other pages to which they refer, will thus represent NERC's formal definition of its 'Corporate Data Resource'.

x acting as a gateway to other NERC custodians of data, whether in their own or another

NERC discipline. Holding and displaying catalogues, directories, leaflets and brochures relating to the activities and holdings of other NERC Data Centres.

xi representing their science disciplines within NERC on matters concerning data, eg via the NERC Data Strategy Group.

### 4.5 The Role of NERC's Audit Procedures

The NERC Data Strategy Group will ensure that the implementation of Council's policies is monitored via the following mechanisms:

- ensuring that Service Level Agreements are drawn up between the Data Centres and their 'customers', with performance indicator statistics being collected to monitor conformance.
- ensuring that data issues are addressed within the routine reporting arrangements of the Data Centres themselves, of Institutes/Units within NERC, or of specific programmes/projects, and that their consideration is specifically included within the terms of reference of Science & Management Audits, etc.
- ensuring, where appropriate, that Council's policies are enforced by appropriate conditions/stipulations applied to grants from NERC Awards & Training.

## 5. PLANNING FOR THE MANAGEMENT OF DATA

### 5.1 Decisions to be made before Data are Collected

**It cannot be emphasised too strongly that any proposal to undertake science which will involve the acquisition of datasets should include at the outset consideration of what is to be done with them once acquired. Valuable scientific or commercial opportunities may be lost if this fundamental principle is neglected.**

Before **any** project at any scale is started, whether it be a major Thematic Programme or the work of an individual scientist, the following issues should be addressed and resolved if appropriate with the relevant NERC Designated Data Centre.

- What existing datasets will be needed by the project and what, if anything, will it cost to acquire them?
- What datasets will be produced by the project and who will be responsible for their initial management?
- What are the requirements for inter-operability between such datasets and how are they to be met in practice? What data (and associated software) standards and quality assurance arrangements should be set in place?
- Is the implication that participants will require a project-specific data *service*; if so how will it be provided and what will it cost?
- How can the data to be assembled be best exploited, whether scientifically or commercially? Who will take the lead in this exploitation and how will any commercial benefits be shared?
- Should specific data products be published or otherwise promulgated as a direct output from the project?
- Which, if any, of the datasets should be accorded long-term stewardship and become part of NERC's environmental data resource? (See section 5.2 for minimum acceptable standards. Reasons should be given for **not** according individual datasets long term stewardship.)

- Who will undertake this long term stewardship?
- Should any specific data services set up during the project be perpetuated after it has finished? If so, will continuing funding be required for them, and can a source be identified?
- What are the overall resource implications of the above plans?
- What are the technological implications of the above plans?

All major projects, and all Thematic Programmes in particular, are required to prepare a written data management plan addressing the above, and to copy it to the Programme Management Coordinator at NERC Swindon Office.

### 5.2 Minimum Standards of Stewardship for NERC 'Corporate Data'

If a dataset is to form part of NERC's enduring data resource, then the following minimum standards are required.

- The ownership and Intellectual Property Rights to the dataset must be established and NERC's policy towards exploiting and making it available to third parties agreed.

- The dataset must be catalogued to the level of detail required by the Data Centre, so that it can be mentioned, if appropriate, in NERC catalogues on the World Wide Web.

- Formal responsibility for the custody of the dataset must be agreed.

- The data must be fully 'worked up' (ie calibrated, quality controlled, etc) with sufficient qualifying documentation to be of use to third parties without reference to the original collector.

- The technical details of how the data are to be stored, managed and accessed must be agreed and suitably documented.

- The technological implications must be established (see 5.3).

- The resources needed to carry out these intentions over the planned life of the data, in terms of staff (whether in project teams or the Data Centre) and Information Technology (IT) equipment/ infrastructure, must be estimated and sources identified.*

- A review mechanism must exist to reconsider periodically the cost benefits of continuing to maintain the data. The intention to destroy or put at risk data should be publicised in advance, allowing time for a response by interested parties.

*For example, the NERC North Sea Community Research Project spent 9 staff years of effort over 4 years within the British Oceanographic Data Centre, in processing and assembling the project dataset which was ultimately published as a CD-ROM.

### 5.3 Technological Implications

Data stewardship implies the need for an underlying infrastructure of IT equipment and support. This will include adequate communication links to the sites holding data, computing hardware and software (eg database- and file- servers with adequate backup and secure off-line media storage, and geographical information systems) and operational/technical support for such facilities.

The rapid evolution of IT presents both opportunities and threats to those responsible for data: opportunities in that they may be able to adopt more efficient and cost effective techniques for data management (subject to appropriate investment); and threats in that changes in technology render former media obsolete, forcing the need for investment in alternatives and in the potentially crippling costs of transcription. Moreover, IT developments affect instrument technology, making it feasible to collect ever larger quantities of data, and offsetting the improvements in storage capacity.

The membership of the Data Strategy Group includes IT expertise so that the Data Centres will be aware of these opportunities and threats. In response, the Data Centres can ensure that project data plans are realistic and incorporate adequate IT provision; and prepare cases for IT investment to evolve their data services in the light of their customers' needs.

## 6. ACCESS TO, AND CHARGES FOR, NERC's DATA

### 6.1 The Public Interface to NERC's Data Holdings

Council intends that enquiries concerning NERC's data holdings, or requests for access to them, should normally be addressed in the first instance to the appropriate Designated Data Centre. In addition to its detailed expertise relating to its own discipline's data, each Data Centre will have some knowledge of, and material relating to, the holdings of the others, and will refer enquiries onward to them if necessary.

### 6.2 Granting Access to NERC's Data

It is important that all holders of data in the NERC community who receive requests from third parties for access to the datasets they hold should first establish, before they supply them, that

- they have a right to transfer the data requested (eg the copyright/IPR is not owned by some other party who has not authorised disclosure).
- the transfer is not compromising NERC's interests (eg the use of the data, and NERC's liability, are suitably constrained by licence agreements, and that the pricing, or zero-pricing, is appropriate).

The advice of the appropriate Designated Data Centre should be sought if necessary.

Many of NERC's datasets may constitute 'environmental information' within the meaning of the Environmental Information Regulations 1992. These provide a **right of access** in a timely manner to such information, though it is important to note that 'freedom of access' need not imply 'free access'. There are circumstances under which such requests either **may** or **must** be refused (eg if the data contain personal information). **Holders of NERC data who receive requests for access to them which specifically invoke the Environmental Information Regulations should in all cases seek the advice of the appropriate Designated Data Centre**.

Furthermore, **if such holders of NERC data receive any requests (whether invoking the regulations or not) which they intend to refuse, they should seek guidance from the Data Centre as to the lawfulness of their intention and discuss their grounds for doing so.**

### 6.3 NERC's Data Pricing Policy

NERC does not normally sell data or the Intellectual Property Rights to its data. Where a charge is levied, NERC will generally sell the **right to use data** and provide access to the data so that the right can be exercised.

In making datasets available (when it has the right to do so) Council seeks to realise their value in the advancement of environmental science and/or the creation of wealth. It is therefore Council policy to charge for the provision of data at a rate that is dependent on the use to which the data will be put and to specify formally any consequent restrictions on the use of the data in formal licensing agreements. This policy enables Council to reflect the value of the data and the cost it has incurred in data acquisition, custody and retrieval, when satisfying requests for wholly commercial applications. By contrast, it is NERC policy to enable access to data by *bona fide* scientific researchers at no more than the direct costs involved. Depending on circumstances, this will be achieved by providing data either: wholly free of charge (eg when provision of data to a specific community has already been funded centrally); for a nominal handling charge; or at an appropriately discounted rate.

'*Bona fide* researchers' are those conducting academic research solely to advance the state of knowledge and not for commercial gain; where appropriate, NERC will peer review the application. Note that access to data may be permitted even when NERC is not itself funding the bona fide research and in this case represents 'support in kind'.

Such provision of data for *bona fide* research must inevitably be based on mutual trust. Council must be satisfied that data supplied free or at reduced cost for research will not be re-used for commercial purposes in breach of the licensing arrangements, and may revoke academic privileges in cases of abuse.

The results of *bona fide* research should be published in the public domain and unless agreed otherwise, processed datasets derived from NERC's data supplied under such terms should be offered to NERC. Even where commercial charges are made for NERC's data, it may be appropriate to agree within the licence that processed data will be returned to NERC under suitable terms.

Where academics supported by NERC grants have deposited resulting data with NERC, the Intellectual Property Rights (IPR) to those data need not be transferred to NERC. NERC will make the data available to other *bona fide* researchers either free of charge or for no more than a handling charge. If requests for such data are received from *commercial* users, NERC will refer them to the owners of the data unless other arrangements have been negotiated.

Since disseminating information about datasets can only increase their utilisation for science, education or wealth creation, it is NERC policy that access to its basic catalogues and indexes should be encouraged and be 'free'; ie incur no more than any direct costs involved. Sophisticated software based catalogues supplied in machine readable form may be marketed as data in their own right, with inexpensive availability to bona fide researchers as above.

The Data Centres are in a position to provide further guidance on licensing and pricing to other holders of NERC data.

### 6.4 Data Exchange, etc

Council intends its policy to be sufficiently flexible to encourage collaboration with other bodies and to enable the value of its data assets to be realised on occasions by arrangements such as data

exchange, rather than by charging a price for the licence to use them.

Partners in data acquisition will not be charged for unprocessed data but where NERC has analysed, interpreted or generally added value to the data, a charge for the resultant value-added information may be made.

NERC's Corporate Data may be used as a potentially tradeable asset for reciprocal exchange agreements between the Research Councils, between NERC and UK Government departments, and between NERC and non-UK organisations, without prejudice to current contractual arrangements. Data will be exchanged for research purposes where it is clear that the research will lead to a contribution to knowledge within NERC□s remit, or to benefits in kind to NERC; for example, data may be exchanged with commercial organisations or with researchers in non-NERC disciplines if the data received are of value to NERC's corporate data holdings and useful for the conduct of environmental science. Such negotiations will normally be undertaken by the appropriate Data Centre(s) or the Data Strategy Group secretariat.

## 7. THE IMPLICATIONS FOR SCIENTISTS HOLDING DATA

### 7.1 An Evolving Situation

Sections 1-6 of this handbook present guidelines on Council's policies which have been evolved over the years of NERC's existence. While they provide a mechanism for ensuring that all **new** data collected by the NERC community will be accorded treatment commensurate with their importance, it would be idle to suppose that all existing NERC data are yet managed to a similar standard. Tackling the backlog will inevitably take time; substantial resources will be needed; and decisions on priorities will therefore be inevitable.

### 7.2 Responsibilities of Managers of Major Programmes

Managers of major projects, and of NERC Thematic Programmes in particular, are expected to give detailed consideration to the data management component of these activities, to liaise closely with the appropriate Designated Data Centre(s), to ensure that a written data management plan is produced at the outset and to copy this to NERC Swindon Office. See 5.1.

### 7.3 Responsibilities of *all* Data Holders

**All scientists in the NERC community who are involved with the collection and/or maintenance of data should adhere to the following guidelines.**

- They should be acquainted with the principles contained in this handbook, follow them when planning the collection of any new data, and where practicable attempt retrospectively to manage to the same standards data already collected
- In particular, they should be aware of the role of the Designated Data Centres and have identified which Centre(s) has overall responsibility for NERC data in their custody
- They should be liaising with the appropriate Data Centre if

i they require data from non-NERC suppliers which will need to be licensed/purchased at significant expense. Through its knowledge of other potential requirements for the same data the Data Centre may be able to arrange a more favourable deal than an individual scientist. In some cases (eg satellite imagery) it is standard practice for the Data Centres to effect the transaction on behalf of the scientist; the cost of such data licences are not

allowable on research grants.

iii they are providing a service disseminating data to users outside their immediate team. This will enable them to ensure that their activities, eg in relation to making data available and charging for access, are consistent with NERC policies.

iii they have datasets they believe to be of 'publishable quality' that would justify publicising and disseminating more widely to users, whether scientific or commercial. In particular, recipients of NERC grants should liaise with the appropriate Data Centre, and offer to deposit with it a copy of data resulting from the research supported, as outlined in 4.4iii above.

iv they are holding datasets which would require the expenditure of resources if they were to be rendered publishable, but which might justify such investment in terms of the subsequent scientific or commercial return.

v they are approached with requests for data invoking the Environmental Information Regulations.

## ANNEX 1: FORMAL NERC DATA POLICY STATEMENT

### A Data Acquisition

With regard to the acquisition of data, the NERC:

i regards datasets as a valuable resource in their own right;
ii will ensure that the maximum benefits are derived from data acquired by NERC;
iii requires that due consideration be given to the 'post-project' stewardship of data prior to approval being given for a 'project';
iv will establish, at the outset, how the data acquired as a result of such projects will be exploited (whether commercially or scientifically); who will be responsible for this exploitation; and how the benefits will be shared;
v requires that recipients of NERC grants offer to deposit with NERC a copy of datasets resulting from the research supported, for use by other bona fide researchers, but without prejudice to the intellectual property rights;
vi requires that processed data sets derived from NERC's data, which were provided on 'academic' terms, be offered to NERC.

### B Data Management

In managing its data holdings, the NERC will:

i have defined points of contact associated with its Designated Data Centres, with which agreements must be reached as part of the planning for any new activities which generate new datasets, so that the full implications (including any commitments on the Designated Data Centres or requirements for IT infrastructure) can be established at the outset;
ii use these defined points of contact to publicise its data, providing a means whereby the environmental science community can find out what information it can obtain, and on what terms;
iii facilitate access by customers to NERC data holdings;
iv publicise its intention to put at risk or destroy data, before doing so, when it is considered that the cost of keeping datasets outweighs the apparent benefits;
v determine the costs relating to data management, once data have been collected.

### C Data use

With regard to the use of data, the NERC will:

i ensure that individual scientists, principal investigator teams and participants in programmes will be permitted a reasonable period to work exclusively on, and publish the results of, the data collected by such individuals and teams;
ii exchange data for research purposes where it is clear that the research will lead to a contribution to knowledge within NERC's remit, or to benefits in kind;
iii regard data as a potentially tradeable asset for reciprocal exchange agreements between Research Councils, between NERC and UK Government Departments, and between NERC and non-UK organisations, without prejudice to current contractual arrangements; and
iv specify formally any restrictions on the use of data in formal licensing agreements.

### D Charging for Access to NERC's Data

Recognising the value of data as a resource, but mindful of the manner of its acquisition, the NERC will:

i not charge partners in data acquisition for unprocessed data;
ii consider whether or not a charge should be made where NERC has analysed, interpreted, or generally added value to the data;
iii charge* for the provision of data at a rate that is dependent on the use to which the data will be put;
iv specify formally any consequent restrictions on the use of data in formal licensing agreements;
v enable access to data by bona fide scientific researchers at no more than the direct costs involved (nominal handling charge) or at an appropriately discounted rate;
vi encourage access to basic catalogues and indexes of NERC data, for which only direct costs will be charged; but
vii market software-based catalogues, supplied in machine readable form, in their own right.

* or accept 'payment in kind' eg exchange

## ANNEX 2: NERC DESIGNATED DATA CENTRES

Further Information about NERC's Designated Data Centres can be obtained from the NERC World Wide Web home page URL http://www.nerc.ac.uk/

Council has delegated responsibility for data, and the implementation of its data policies, to seven Designated Data Centres as follows:

**Antarctic Environmental Data Centre**
[responsible for all NERC's data from the Antarctic, irrespective of discipline]

British Antarctic Survey
High Cross
Madingley Road
Cambridge CB3 0ET

tel 01223-221400
fax 01223-362616
e-mail aedc@bas.ac.uk

**British Atmospheric Data Centre**
[responsible for atmospheric sciences data]

Rutherford Appleton Laboratory
Chilton
Didcot
Oxon OX11 0QX

tel 01235-446432
fax 01235-445848
e-mail badc@rl.ac.uk

**British Oceanographic Data Centre**
[responsible for marine data]

Proudman Oceanographic Laboratory
Bidston Observatory
Birkenhead
Merseyside L43 7RA

tel 0151-653-8633
fax 0151-652-3950
e-mail bodcmail@pol.ac.uk

**National Geosciences Information Service**
[responsible for geosciences data, but NERC's science-based archaeology community should liaise directly with the Archaeology Data Service, Dept of Archaeology, University of York, Kings Manor, York YO1 2EP tel 01904-433954 fax 01904-433939 e-mail info@ads.ahds.ac.uk]

British Geological Survey
Keyworth
Nottingham NG12 5GG

tel 0115-9363109
fax 0115-9363276
e-mail ngis@bgs.ac.uk

**National Water Archive**
[responsible for NERC's hydrological data, and the Government's National River Flow Archive]

Institute of Hydrology
Wallingford
Oxon OX10 8BB

tel 01491-838800
fax 01491-692424
e-mail nwamail@ioh.ac.uk

**Environmental Information Centre**
[responsible for all other NERC terrestrial and freshwater data]

Institute of Terrestrial Ecology
Monks Wood
Abbots Ripton
Huntingdon
Cambs. PE17 2LS

tel 01487-773381
fax 01487-773467
e-mail eic@ite.ac.uk

**NERC Earth Observation Data Centre**
[responsible for NERC's holdings of Earth observation data]

Rutherford Appleton Laboratory
Chilton
Didcot
Oxon OX11 0QX

tel 01235-446168
fax 01235-445848
e-mail neodc@rl.ac.uk

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